

A Project Manager and Design Phase Leader

Guide to Mitigating GDOT Schedule Risks



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This document was developed by the GPTQ Program Delivery Subcommittee as part of the continuing effort to share knowledge and provide guidance within the Georgia Department of Transportation and to its consultant partners in fulfilling the Department’s mission to provide a safe, efficient, and sustainable transportation system through dedicated teamwork and responsible leadership supporting economic development, environmental sensitivity and improved quality of life.

This document is not intended to establish policy within the Department, or to replace any, but to provide guidance in adhering to the policies and procedures of the Department.

Your comments, suggestions, and ideas for improvements are welcomed.

Please send comments to: opdcustomerservice@dot.ga.gov

Potential Schedule Risks in the Concept Phase:

| PROJECT UNKNOWNNS | | POTENTIAL MITIGATION/SOLUTIONS |
|--|---|---|
| No site visit or bad time of year to visit (i.e., heavily vegetated or not season for certain species) | → | Review with environmental staff early to see if the area likely has seasonal inhabitants |
| New developments | → | This may be possible to solve with continued Communication with locals |
| Constantly changing utility owners (i.e., influx of new fiber companies, changing names, etc.) | → | Identify utility companies early – suggest getting a list from the local District office |
| Missed resources (Environmental) | → | Engage environmental staff early |
| FUNDING | | POTENTIAL MITIGATION/SOLUTIONS |
| Bad Planning Cost estimate due to lack of knowledge or experience by preparer | → | More training for those doing planning level estimates Office of Planning can create a guide showing “rule of thumb” costs for various project types |
| Needing additional funds committed prior to concept (i.e., not enough funding to move the project forward) | → | This could be solved with better planning level estimates. However, if unknowns are the cause of additional funding being required, early detection is the key to see if concept needs to use “Practical Design” methods or have a VE study performed to reduce costs |
| Over programming in one funding source (i.e., state funding) | → | DPL should assess Programmed Estimate early as possible and communicate whether the proposed design will meet or exceed. Then discuss with OPD Management regarding possibility of acquiring more funds or design to budget |
| Changes in B/C ratio (As project progresses may decrease amount of funding able to be allotted to project) | → | Reviewing the B/C ratio throughout life cycle of project (see comments above regarding needing additional funds) |
| Having to design to budget | → | See comments above regarding needing additional funds. |

Not enough funding for Preliminary Engineering (PE)



If only funding for concept is available, then this will just be a continued discussion during monthly meetings on when PE can begin, and schedule will be updated accordingly

POLICIES & PROCEDURES

POTENTIAL MITIGATION/SOLUTIONS

Using wrong templates (limited scope vs. full concept report)



Ensuring proper training with PDP and PMs are familiar when these can be used – this can be discussed in monthly meetings

Policy changes that change scope or project limits (i.e., MS4)



There has already been a suggestion to the CRC group to potentially provide a list of upcoming policy changes while they are being vetted so that PMs and DPLs could possibly determine if they affect their projects

Approved schedule (when concept not in first task order) doesn't account for time for procurement for concept phase



Suggested to allot for 6 months for procurement but if a consultant receives a schedule at the NTP that is already behind, the GDOT PM needs to be notified immediately to adjust as necessary. Schedules should be discussed during monthly meetings.

SCOPE

POTENTIAL MITIGATION/SOLUTIONS

Changes in elected officials or vocal citizens that have different ideas for concept



This may be possible to solve with continued Communication with locals
Drive projects to completion as soon as possible

Poorly defined project justification by Programming Office



Additional training in project justifications to ensure that the project that is advanced is what is needed

CIDs or Alliances in project area that may want items added to the project with addition of funding



This may be possible to solve with continued Communication with locals and engaging them prior to the concept team meeting – perhaps invite them to kick off meeting so they can share information about the area

Sometimes the first time the locals see the project is at the concept team meeting



This may be possible to solve with continued Communication with locals and engaging them prior to the concept team meeting – perhaps invite them to kick off meeting so they can share information about the area

PDP calls for an initial concept team meeting where locals are invited. PM and DPL to ensure this step is not skipped.

Traffic can change project limits due to things like logical termini



This is a case by case issue that will arise as traffic is completed. If volumes/counts seem higher than expected, discussions with PM early are the key.

Changes in scope can cause additional prequalified area classes that weren't originally identified



Continued discussions with PM are the key to this. For example, if rock is encountered and then Geotech is required, early detection can allow for GDOT staff to handle or allow for additional subs to be added if necessary.

Potential Schedule Risks in the Preliminary Phase:

| PROCUREMENT | | POTENTIAL MITIGATION/SOLUTIONS |
|---|---|--|
| Not starting the scope for the next task order 6 to 9 months prior to needing NTP | → | Develop and implement a procurement plan early |
| Standard language / tasks for scope of work | → | Hold scoping meeting with PM and GDOT SMEs |
| Need accurate manhours | → | Have senior level personnel develop manhours; rely on experience and what it takes to complete a task |
| Poor assumptions | → | Provide detailed assumptions |
| VE STUDY | | POTENTIAL MITIGATION/SOLUTIONS |
| Timelines for gathering materials | → | Ensure all materials are ready 60 days prior to anticipated date of the study |
| Allowing time for study & responses | → | Provide enough engineering documentation to help make decision to implement, not implement, or implement with modifications for each VE recommendation within 4 weeks after distribution of the VE study |
| Risks are not always vetted or fully developed to the level of detail needed | → | PM should try to identify and communicate major risks to the VE Team |
| Revised concept report & possible PIOH | → | Recognize if a VE Study is required early in process and allow time in the schedule for a revision if required |
| ENVIRONMENTAL | | POTENTIAL MITIGATION/SOLUTIONS |
| Inaccurate ESB | → | Coordinate early and often with design to be sure ESB is sufficiently large enough to cover any future design changes within reason. |
| Did not account for MS4 areas | → | Coordinate early with design to identify potential areas for MS4 areas, or that ESB is large enough for future MS4 areas. |
| Policy changes | → | Involvement with GPTQ subcommittees, and access to OES SharePoint sites |

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|---|---|---|
| 4F / 6F issues | → | Identify resources in concept phase to begin 6(f) coordination and discuss potential level of 4(f) analysis. |
| Survey seasons | → | Agency coordination early, and scope for and conduct during concept phase. But; Need ESB for GNARGHIS search Enough scope to cover ESB, but don't want to over survey Review resources early with environmental team and work together regarding survey seasons to ensure NTP allows for these |
| Impacts to US Army Corp of Engineer property | → | Provide information regarding impacts to Corp property as soon as possible to GDOT PM. |
| State vs Federal funding | → | Not usually an issue if going from Federal to State funding; more requirements for funding changes from state to federal |
| Regional vs Individual permits | → | RP's have larger allowable impact areas; use of A3M process |
| Agency coordination & their review times | → | These are standard so better planning is needed on part of project team |
| Missed resources | → | Better QA/QC process |
| 20 series plans needed for environmental document | → | Wait to get most accurate 20 series; if preliminary 20 series used for permitting, and later refined could result in resubmitting permits (any gain from using preliminary 20 series could be lost if resource impacts change with later plans). |

| DATABASE & MAPPING | | POTENTIAL MITIGATION/SOLUTIONS |
|--|---|--|
| Aerial Mapping: only certain times the corridor can be flown | → | Recognize early in the PDP process that the corridor can only be flown at certain times therefore allow time in schedule |
| Survey Database checks | → | Submit database check as soon as survey is complete to Statewide Location Bureau. Allow time for review and corrections |

| | | |
|---------------------|---|--|
| Septic Tank Parcels | → | The Right of Entry Letters do ask for a location of owner's septic tank therefore the Consultant PM needs to follow up to get their response |
| New Development | → | This may be possible to solve with continued Communication with locals |

UTILITY & RAILROADS

POTENTIAL MITIGATION/SOLUTIONS

| | | |
|--|---|--|
| Railroad bridge or parallel to bridge (coordination) | → | Early coordination with railroad is key. Focus on these areas first when developing roadway geometrics. ANY encroachment (even drainage) requires a permit or an agreement. |
| Return of 1 st submission utility plans | → | Submit on time as utility owners have a backlog also. Document prior rights determine need for bridge attachment and joint use poles. Public Interest Determination utilized? |
| Utility meeting prior to PFPR | → | Get a good idea of utilities and efforts to relocate or avoid. |
| New development | → | Especially in urban corridors. Check with local government regarding permits submitted/issued within the corridor. |
| SUE task orders | → | A necessity for urban areas and where critical utilities are located. Implement a Utility Impact Analysis (UIA). |

DRAINAGE & HYDRAULICS

POTENTIAL MITIGATION/SOLUTIONS

| | | |
|---|---|---|
| MS4 timeline for preparation & approval | → | Don't underestimate the work required for MS4 approval. If infiltration BMPs are to be used, infiltration testing required by Geotechnical Consultant. Submit MS4 Report a minimum of 8 weeks prior to PFPR request. |
| H&H study FEMA coordination | → | Determine if FEMA coordination is required. If so, determine level of coordination and obtain FEMA information early so that bridge layout can progress, and culvert sizing is accurate. Inaccuracies at this stage can affect design, environmental approvals, and permitting. |

| | | |
|--------------------------------------|---|---|
| Bridge stakeout | → | Schedule and complete bridge stake out immediately after approval of the preliminary bridge layout so the District can verify. The results are needed to complete the PFPR Report. |
| Culvert crossings comply with permit | → | Check lengths of stream impacts versus those in ecology report. Make sure impacts are calculated properly. Don't forget about headwalls, rip rap, or tail ditches. If culvert is on a skew, check stream impact calculations carefully. |

| CONSTRUCTABILITY REVIEW | | POTENTIAL MITIGATION/SOLUTIONS |
|--|---|---|
| Detour route needed/acceptable | → | Check with local government concerning pavement condition if not on a State Route. Local government/District Office may have different opinions/routes for detours. Will the route need environmental clearance? Are existing geometrics and capacity acceptable? Will signals along the route need to be modified? Early coordination with emergency services, school board, District Office and other stakeholders. |
| Detour open house required | → | Verify early and discuss/confirm need at constructability review. Detour Report required if roadway closures are anticipated to exceed 5 days in duration. Incorporate comments from meeting into final Detour Report. |
| Environmental survey boundary needing updating due to outcome of constructability review | → | Anticipate constructability when developing initial Environmental Survey Boundary. Hot Button Change: Revisions to the ESB can result in substantial additional work for environmental team and surveyors and can impact project schedule. |

Potential Schedule Risks in the Right of Way Phase:

| PROJECT UNKNOWNNS | | POTENTIAL MITIGATION/SOLUTIONS |
|---|---|---|
| Septic Tanks | → | A request for this information has already been incorporated into property owner notification letters for survey |
| Unknown Hazardous Materials Issues | → | Not that common and usually found out during negotiations |
| Inaccurate Database | → | This is likely an ongoing problem that can only be solved with proper QAQC of property resolution database |
| New developments | → | This may be possible to solve with continued Communication with locals |
| FUNDING | | POTENTIAL MITIGATION/SOLUTIONS |
| Preliminary right of way cost estimates being done by engineers that don't always have necessary information to create good estimates | → | Ensure that the staff doing these estimates are GDOT prequalified |
| Overall Funding | → | More of an issue with locals ensuring that they can adjust the TIP to match the ROW cost estimate and commit to this funding |
| POLICIES & PROCEDURES | | POTENTIAL MITIGATION/SOLUTIONS |
| Adjusting plans due to changes in policy (i.e., MS4 regulations which may now require additional ROW or with State funded projects that are further along in ROW before NEPA is complete) | → | There has already been a suggestion to the CRC group to potentially provide a list of upcoming policy changes while they are being vetted so that PMs could possibly determine if they affect their projects |
| Demo easements | → | Often these are designed for much smaller than is needed and issues occur during construction – ROW Office is updating the ROW manual and checklist to incorporate this to ensure that DPLs are using these guidelines for design |

| SCOPE | | POTENTIAL MITIGATION/SOLUTIONS |
|---|---|---|
| Changes due to property owner requests during negotiations | ➔ | This is likely unavoidable but continued communication between PM and ROW staff is key to mitigation |
| Changes due to local preferences | ➔ | Likely due to a change in staffing or elections and unavoidable but continued communication with locals during process is key to mitigation |
| PEOPLE | | POTENTIAL MITIGATION/SOLUTIONS |
| Availability of resources (not enough qualified ROW professionals) | ➔ | ROW Office has reduced some of requirements for certain positions to allow for a greater pool of professionals |
| Low bid used for Procurement (Sometimes you don't get the most qualified and this can add time/money if things need to be redone) | ➔ | This is an ongoing discussion in the GPTQ ROW Subcommittee |

Potential Schedule Risks in the Final Phase:

| PROJECT UNKNOWNNS | | POTENTIAL MITIGATION/SOLUTIONS |
|---|---|--|
| New environmental resources/species, etc. | → | Coordinate w/ENV at PFPR. |
| Geotech surprises (bad soil or rock reported from WFI and/or BFIs) | → | Assess risk during concept and preliminary design; possibly do early Geotech work if high risk location. |
| Requests from R/W (driveway changes, R/W & easement revisions, etc.) | → | This is likely unavoidable and becomes more of a budget issue than schedule for Final Design Phase; however communication between PM and ROW staff is key to ensure that requests don't start to become scope creep to the project |
| New developments/property splits | → | This is likely unavoidable and more of a budget issue than schedule for Final Design Phase. Continued communication with locals is the key as they will likely know of new developments before PMs will. |
| Bad property resolution | → | Better survey QC/QA. |
| Scope creep / project limit changes from PFPR | → | PM and designer should escalate to Management before implementing. |
| Updating Traffic #s late | → | PM and designer should escalate to Management. |
| Features missed by initial surveys (unmarked graves, USTs, Utility vaults, etc.) | → | Database QC/QA. Add specific checks to standard procedures. |
| FUNDING | | POTENTIAL MITIGATION/SOLUTIONS |
| Bridge & wall cost estimate increases after BFI, WFI & final design completed | → | Assess risk during preliminary phase. Possibly consider preliminary Geotech during concept Phase if there is a high risk situation |
| Delays due to TIP changes required for additional funding (due to rising material | → | Sometimes unavoidable. Better estimating during preliminary phase |

costs, bad preliminary cost estimates, etc.

helps.

| PEOPLE | POTENTIAL MITIGATION/SOLUTIONS |
|---|--|
| Inadequate QA/QC | → Ensure qualified staff is assigned and adequate time is provided for QC/QA in designer's schedule. |
| Changing key project team members late in process | → Try to avoid if possible. Identify deputies for key team members. |
| Long project delays can cause staffing problems when project starts again | → Begin planning several months in advance. Maintain communication with GDOT while on hold to assess when it will restart. |
| Inadequate staffing in final months of project (need to be responsive to all contractor RFIs, questions from GDOT Contracts Office, etc.) | → Don't underestimate effort required at the end. |
| Inexperienced PMs & SMEs (GDOT and Consultant) | → More training and mentoring. Have at least one (1) experienced team member (PDP trained) on each team. |